

REMARKS

Claim Objection

Claim 2 is objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 2 has been cancelled.

35 U.S.C. §112, second paragraph

Claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

While all pending claims have been rejected, only claim 2 was noted as being at issue in paragraph 7 of the Office Action. Claim 2 has been cancelled. Applicants presume that there are no other outstanding 112 issues for claims 1 and 3-10 as nothing specific was pointed out with regards to these claims.

35 U.S.C. § 103

Claims 1-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the state of the art exemplified by Boileau (3,830,273), Gerard et al. (5,421,390), Gerard et al (5,645,658), Hammond et al (5,685,927), and European Patent Application 0 465 786 A1, in view of Palmer (1,293,528), Murray (2,691,335), French Patent 607.026, and Japanese Patent Application 5-229303 A taken with Japanese Patent Application 5-229302A. This rejection is respectfully traversed for the following reasons.

In the rejection, the first five cited references are cited as showing the state of the art regarding dual lobe tires. These references all disclose pneumatic radial tires having dual belt constructions, the belts being separated by a deep tread circumferential groove. Below the deep groove, and embedded within the tire is some sort of circumferentially extending ring. These references, when discussed collectively, will be referred to as "Cumulative Art."

To show the known alternatives of using either an embedded ring or a ring in the circumferential groove, Palmer, Murray, French '026 are applied.

Palmer is concerned with restraining radial growth of a pneumatic tire (pg 1, lines 29-78). This is a problem that was unique with bias ply tires having no breaker plies, which is the situation with the tire of Palmer. To restrain the growth of the tire, Palmer teaches placing chains E in circumferential channels F (pg 2, lines 16-34). When placed in channels,

the chains do not restrain the tire to such an extent that the chains are radially inward of the reinforcing layers of the tire. Palmer also teaches alternatively that the chains may be embedded in the tire (pg 2, lines 80-88). As noted, Palmer is concerned about radial expansion of a bias tire under pressure. Those knowledgeable of the current state of the art are aware that such a problem is non-existent for belted radial tires. Thus, they would not look to Palmer for any teachings in modifying the tires of the Cumulative Art. In accordance with MPEP 2141, the content of the prior art must be determined at the time that Applicants invention was made, and the bias tire of Palmer would not be considered applicable. It is requested that use of Palmer as prior art in the present application be reconsidered and withdrawn.

French 607026, in discussing the multi-lobed tire discloses that the ring 2 is coated with a semi-hardened rubber or other similar substance suitable for “welding” with fabric layer 1, thus forming element C, and that elements A, B, C can all be made separately and then assembled “before vulcanization” (pg 1, line 64 – pg 2, line 6). French ‘026 discloses that D is rubber that creates an outer non-skid groove. While an oral translation is asserted to have determined that the rubber D is optional, a rough machine translation done by Applicant found no such teaching in French 026. Thus, French ‘026 does not disclose a groove in which the circumferentially extending ring is located. Nor does French ‘026 disclose that a ring located in the interior of a pneumatic tire is a known alternative to placing the ring in a tread groove. Should the above assertion regarding the teachings of French ‘026 be maintained, a copy of a full translation of the document is requested by Applicant.

Thus, based on the teachings of the references, Palmer and French ‘026 are not applicable teachings for an alternative construction method for the tires of the Cumulative Art.

Murray is concerned with an agriculture planting tire that does not damage or injure a seeded row and which results in a raised planted row. In forming the planting tire, the tire is manufactured with a conventional profile, broken line 17 of Fig. 3, and one or more channels 25-27 are provided on the tread face to provide seats for constricting rings to force the tire into a multi-lobe configuration. Murray does teach that the multi-lobed configuration can also be made by providing the constricting means embedded in the crown of the tire (col 3, lines 65-75). When the multi-lobe configuration is created by means of the external constricting rings, Murray teaches that the tire can be used alternatively as a single tread tire or a multi-lobed tire, depending on the consumers needs – thus the benefit of providing the

constriction means external to the cured tire. In all of the Cumulative Art, the goal is to achieve a multi-lobe tire to duplicate a dual tire/single rim mounting situation; none of the Cumulative Art is concerned about or desire a ready conversion between a single and dual lobe tire. The Cumulative Art is concerned with creating a dimensionally stable multi-lobe tire; thus one skilled in the art would not look to the teachings of Murray for reasoning of going from the use of an embedded restricting ring to an external restricting ring.

JP '303 and '302 are also applied. While they are separate references with a common inventor and assignee, they are presumably being combined to assert that alternative placement of the ring is known. Both JP '303 and '302 teach the use of some restraining ring between treads of a dual tread tire, both constructions being provided for the purposes of preventing deformation of the dual tread and maintaining the anti-skid properties of the dual tread tire. Thus, viewing these references together, the choice of placement of the ring appears to be arbitrary.

Under the Graham v. Deere requirements for *prima facie* obviousness, in applying the combined teachings of JP '303 and '302 to the Cumulative Art there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations.

Boileau discloses a dual tire for high speed situations, wherein the goal of the tire and the specific construction of the center groove and the internal tire construction of the center groove is to match the stiffness and properties of each side 6A, 6B of the connection zone 6 with the stiffness and properties of each flexible upper sidewall 11A, 11B. The connecting point between the upper and lower sidewall portions is set to be the level to the center of the wire rod 7 embedded in the connection zone. In arbitrarily moving the wire rod 7 of Boileau to inside the groove, instead of being embedded, there is no reasonable expectation of success that the tire of Boileau would still be able to achieve the desired correspondence of wall stiffness and properties. Thus one skilled in the art would not have found it obvious to arbitrarily move the rod 7 of Boileau to inside the groove.

Regarding Gerard '390, it should be noted first that Gerard '390 discloses that Boileau (the equivalent of the noted FR 2187560) has an "obvious lack of fatigue strength" in the connecting region reinforced by the center wire. Thus, to improve the tire, Gerard '390 replaces the round embedded rod with a set of reinforcing layers 7. Those skilled in the art will appreciate that to hold the layers together, the wires are likely embedded in rubber which

must be cured with the tire. Based on the structure of the reinforcing structure in the connecting region 6, i.e. a plurality of layers, one skilled in the art would not arbitrarily move these layers to be located inside of the groove, instead of embedded in the tire as taught. Even if the structure were moved radially upward to a “groove base”, due to the structure of the reinforcement means 7, the groove base itself would simply end up redefined radially upward and the reinforcement means 7 would still be embedded in the tire. Thus, there is no reasonable expectation of success or that the claimed limitations are met. Additionally, French ‘026, which discloses the reinforcing means being embedded in rubber, similar to Gerard ‘390, teaches that even if the rubber embedded ring is preassembled, it is vulcanized with the tire itself, thereby creating a unitary article, not a separately manufactured element as recited by Applicant.

In Gerard ‘658, the reinforcing means for the connecting region 6 of the bi-lobe tire is a plurality of strips or ribbons 70 of reinforcing cords 71 stacked to form a “ring” 7 (col 4, lines 44-50). Gerard ‘658 teaches that the ring 7 must “easily stretch up to a given elongation and thus permit the two interior edges of the two treads to increase their radii.” First, similar to Gerard ‘390, due to the layered ribbon structure of the ring 7, one skilled in the art would not arbitrarily move these layers to be located inside of the groove, instead of embedded in the tire as taught; and if the structure were moved, due to the taught rubber layers, the ring 7 would still be embedded in the tire and not actually located in the base of the groove. Thus, there is no reasonable expectation of success or that the claimed limitation would be met. Second, Gerard ‘658 teaches that the ring must stretch to permit the bi-lobe treads to change shape during operation – this is the exact thing that JP ‘303 and ‘302 are attempting to prevent. Thus, the teachings are opposing, and one skilled in the art would not be provided with any motivation to combine the references.

Hammond ‘927 discloses a self-supporting run-flat tire having a bi-lobe construction having a third bead 37 located radially beneath a center circumferential groove 90. The third bead 37 is formed of multiple layers of steel (col 9, lines 33-35). Hammond teaches that the presence of the third bead 37 enables Hammond to provide thinner than conventional sidewalls for the self-supporting tire (col 9, lines 27-28), contributes to the load carrying capacity of the tire (col 9, lines 48-51), and during run-flat operation, assists the sidewall portions in carrying the entire load (col 10, lines 23-25). Thus, Hammond teaches the third bead 37 as being embedded in the tire for specific reasons. In moving the bead 37 to a location within the tread groove 90, there is no reasonable expectation that the teachings of

Hammond will not be destroyed, especially the requirement that the bead 37 assist in load support during run-flat operation. During run-flat operation, the section height SH of the tire is substantially reduced, and if the bead 37 were located within the groove 90, the bead is susceptible to being displaced from the groove 90, thereby destroying the run-flat capability of the tire. Thus, one skilled in the art would not arbitrarily seek to move the bead 37 from within the tire to within the groove 90.

EP '786 discloses a dual tread tire. EP '786 teaches that a circular cross-sectional reinforcing rod between the tread lobes, such as disclosed by Boileau and JP '303 and '302 actually may tend to make the rod relatively inflexible and have an adverse effect on the tire life. EP '786 discloses the use of an embedded annular member 202 that has physical properties that enable deflection of the member during rotation of the tire through the footprint. EP '786 teaches that the taught internal location of the annular member 202 assures that the groove 184 has a desired depth and assures that the carcass ply "is not too flexible in the area of the central annular portion 180 to create a tire that would be laterally unstable." One skilled in the art viewing Japan '303 and '302 as known alternatives would appreciate that when placing the rod 4 in the central groove 3, the groove depth is increased; however, the tire structure itself is rendered more flexible in the central portion. Thus, to decide to move the annular member 202 of EP '786 into the groove 184, one of the explicit taught goals of EP '786 is destroyed. Per In re Gurley, 27 F.3d 551, 553, 31 U.S.P.Q. 1131, 1132 (Fed. Cir. 1994), if references teach away, they cannot be combined to create a *prima facie* case of obviousness.

Each reference of the Cumulative Art has been addressed in regard to moving the embedded annular reinforcing means located in the tire center to within the groove. As each reference has specific reasons for or goals to be achieved by embedding the reinforcing means in the tire, and movement of the reinforcing means would destroy those reasons or goals to be achieved, one skilled in the art would not seek to arbitrarily move the reinforcing means to within the groove. The present Office Action fails to establish *prima facie* obviousness for the recited invention.

While the Cumulative Art is used collectively in the rejection to just establish what is known, the use of an embedded reinforcing means, what the Cumulative Art also teaches is that there are specific and necessary reasons for embedding the reinforcing means and thus arbitrary movement of the means would not be obvious to those of skill in the art.

As the prior art applied in the manner as set forth in the Office Action fails to

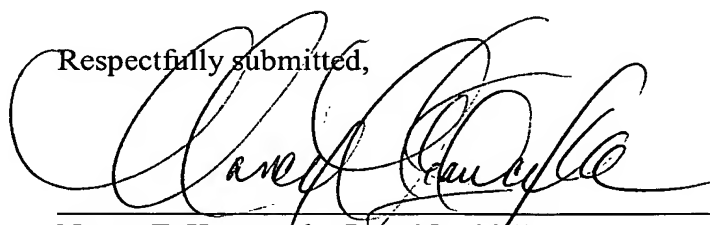
establish prima facie obviousness of the invention as recited in claims 1-9, it is respectfully requested that the rejection be reconsidered and withdrawn.

Claim 10 has been rejected under 35 U.S.C. 103(a) as being unpatentable over the state of the art exemplified by Boileau (3,830,273), Gerard et al (5,421,390), Gerard et al (5,645,658), Hammond et al. (5,685,927), and European Patent Application 0 465 786 A1, in view of Palmer (1,293,528), Murray (2,691,335), French Patent 607.026, and Japanese patent Application 5-229303 A taken with Japanese patent Application 5-229302 A as applied to claims 1-9 above, and further in view of Japanese Patent Application 8-318715A and German Utility Model DE 296 07 231 U1. This rejection is respectfully traversed for the following reasons.

JP 715 and DE 231 are used herein simply to demonstrate the known use of reflective materials in grooves; the references are silent about bi-lobe tires and the construction thereof. Thus, the references fail to cure any deficiency of the rejection of claim 1. As claim 10 incorporates the subject matter of claim 1, and the initial rejection fails to establish *prima facie* obviousness for claim 1, any rejection of claim 10 based also fails.

In light of this amendment, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

Respectfully submitted,



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